


Annex to Solar Keymark Certificate					Licence Number		011-7S3253 P				
					Date issued		2024-11-14				
					Issued by		DIN CERTCO				
Licence holder		Zhejiang Shentai Solar Energy Co., Ltd			Country	CHINA					
Brand (optional)		Suntask, SHENTAI			Web	www.suntasksolar.com					
Street, Number		199 lianhong road,yuanhua industry zone			E-mail	info@suntasksolar.com					
Postcode, City		314416, haining City, zhejiang Province			Tel	+86 573-87861111					
Collector Type					Flat plate collector						
Collector name					Power output per collector G _b = 850 W/m ² , G _d = 150 W/m ² & u = 1.3 m/s $\vartheta_m - \vartheta_a$						
					0 K	10 K	30 K	50 K	70 K	61 K	
Gross area (A _G)	Gross length	Gross width	Gross height								
m ²	mm	mm	mm	W	W	W	W	W	W		
PVT410W	1.95	1,722	1,134	35	735	631	327	0	--	0	
PVT415W	1.95	1,722	1,134	35	735	631	327	0	--	0	
PVT420W	1.95	1,722	1,134	35	735	631	327	0	--	0	
PVT425W	1.95	1,722	1,134	35	735	631	327	0	--	0	
PVT450W	2.16	1,909	1,134	35	814	699	363	0	--	0	
PVT480W	2.37	2,094	1,134	35	893	767	398	0	--	0	
PVT525W	2.58	2,278	1,134	35	972	835	433	0	--	0	
PVT540W	2.58	2,278	1,134	35	972	835	433	0	--	0	
PVT550W	2.58	2,278	1,134	35	972	835	433	0	--	0	
PVT600W	2.83	2,172	1,303	35	1,065	914	475	0	--	0	
Power output per m ² gross area					376	323	168	0	--	0	
Performance parameters test method		Steady state - outdoor									
Performance parameters (related to A _G)		η_0, b	a1	a2	a3	a4	a5	a6	a7	a8	Kd
Units		-	W/(m ² K)	W/(m ² K ²)	J/(m ³ K)	-	J/(m ² K)	s/m	W/(m ² K ⁴)	W/(m ² K ⁴)	-
Test results		0.381	4.49	0.082	0.000	0.00	27438	0.000	0.00	0.00	0.92
Incidence angle modifier test method		Steady state - outdoor									
Incidence angle modifier		Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°
Transversal		K _{PT, coll}	1.00	1.00	1.00	0.98	0.96	0.89	0.77	0.51	0.00
Longitudinal		K _{PL, coll}	1.00	1.00	1.00	0.98	0.96	0.89	0.77	0.51	0.00
Heat transfer medium for testing					Water						
Flow rate for testing (per gross area, A _G)					dm/dt	0.020	kg/(sm ²)				
Maximum temperature difference during thermal performance test					($\vartheta_m - \vartheta_a$) _{max}	31	K				
Standard stagnation temperature (G = 1000 W/m ² ; $\vartheta_a = 30$ °C)					ϑ_{stg}	90	°C				
Maximum operating temperature					$\vartheta_{max, op}$	50	°C				
Maximum operating pressure					p _{max, op}	600	kPa				
Testing laboratory		Intertek Testing Services Shenzhen Ltd. Guangzhou Branch				http://www.intertek.com					
Test report(s)		231031212GZU-001				Dated	2024/10/23				
Comments of testing laboratory					Draft Ver. 6.2 (22.09.2021)						
<p><u>All result are tested from model PVT/600W.</u></p> <p><u>Thermal performance parameters are given for the PV-module working with max. electrical power output (PV-module mode MS-M600), the max electrical power of the PVT collector is 600 Wmpp.</u></p> <p><u>IEC 61215 and IEC 61730 is certified by TÜV Rheinland under PV 50551690 0001 (2022-07-26) based on the test report CN22DNJ0 001 (2022-07-26) and CN22DNJ0 002 (2023-06-05) issued by TÜV Rheinland.</u></p>					 Stamp & signature of tes-						
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Annex to Solar Keymark Certificate Supplementary Information		Licence Number		011-7S3253 P									
		Issued		2024-11-14									
Gross Thermal Yield in kWh/collector at mean fluid temperature ϑ_m													
Collector name	Standard Locations	Athens			Davos			Stockholm			Würzburg		
	ϑ_m	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C	25°C	50°C	75°C
PVT410W		1,102	326		575	85		487	88		544	98	
PVT415W		1,102	326		575	85		487	88		544	98	
PVT420W		1,102	326		575	85		487	88		544	98	
PVT425W		1,102	326		575	85		487	88		544	98	
PVT450W		1,221	361		637	94		540	97		603	109	
PVT480W		1,340	396		699	103		592	107		662	120	
PVT525W		1,458	431		761	112		644	116		720	130	
PVT540W		1,458	431		761	112		644	116		720	130	
PVT550W		1,458	431		761	112		644	116		720	130	
PVT600W		1,597	472		833	123		706	127		789	142	
Gross Thermal Yield per m ² gross area		564	167	--	294	43	--	249	45	--	279	50	--
Annual efficiency, η_a		32%	9%	--	18%	3%	--	21%	4%	--	22%	4%	--
Fixed or tracking collector		Fixed (slope = latitude - 15°; rounded to nearest 5°)											
Annual irradiation on collector plane		1765 kWh/m ²			1630 kWh/m ²			1166 kWh/m ²			1244 kWh/m ²		
Mean annual ambient air temperature		18.5°C			3.2°C			7.5°C			9.0°C		
Collector orientation or tracking mode		South, 25°			South, 30°			South, 45°			South, 35°		
The collector is operated at constant temperature ϑ_m (mean of in- and outlet temperatures). The calculation of the annual collector performance is performed with the official Solar Keymark spreadsheet tool Scenocalc Draft Ver. 6.2 (22.09.2021). A detailed description of the calculations is available at http://www.estif.org/solarkeymarknew/													
Additional Information													
Collector heat transfer medium										Water-Glycole			
The collector is deemed to be suitable for roof integration										No			
The collector was tested successfully under the following conditions:													
Climate class (A+, A, B or C)										B		--	
G (W/m ²) >		900		ϑ_a (°C) >		15		H_x (MJ/m ²) >		540			
Maximum tested positive load										1000		Pa	
Maximum tested negative load										1000		Pa	
Hail resistance using steel ball (maximum drop height)										1.2		m	
Additional collector attribute(s)													
Using external power source(s) for normal operation				No		Active or passive measure(s) for self-protection				No			
Co-generating thermal and electrical power				Yes		Façade collector(s)				No			
Energy Labelling Information						Additional Informative Technical Data							
		Reference Area, A_{sol} (m ²)				Hydraulic Designation Code			Aperture Area, A_a (m ²)				
PVT410W		1.95				4,4-V-12S-A:12,1775-C:12,1134-D			1.83				
PVT415W		1.95				4,4-V-12S-A:12,1775-C:12,1134-D			1.83				
PVT420W		1.95				4,4-V-12S-A:12,1775-C:12,1134-D			1.83				
PVT425W		1.95				4,4-V-12S-A:12,1775-C:12,1134-D			1.83				
PVT450W		2.16				4,4-V-12S-A:12,1909-C:12,1134-D			2.10				
PVT480W		2.37				4,4-V-12S-A:12,1921-C:12,1171-D			2.31				
PVT525W		2.58				4,4-V-12S-A:12,2015-C:12,1220-D			2.52				
PVT540W		2.58				4,4-V-12S-A:12,2046-C:12,1237-D			2.52				
PVT550W		2.58				4,4-V-12S-A:12,2067-C:12,1248-D			2.52				
PVT600W		2.83				4,4-V-12S-A:12,2172-C:12,1303-D			2.69				
Data required for CDR (EU) No 811/2013 - Reference Area A_{sol}						Data required for CDR (EU) No 812/2013 - Reference Area A_{sol}							
Collector efficiency (η_{col})		7%				Zero-loss efficiency (η_0)			0.38		--		
Remark: Collector efficiency (η_{col}) is defined in CDR (EU) No 811/2013 as collector efficiency of the solar collector at a temperature difference between the solar collector and the surrounding air of 40 K and a global solar irradiance of 1000 W/m ² , expressed in % and rounded to the nearest integer. Deviating from the regulation η_{col} is based on reference area (A_{sol}) which is aperture area for values according to EN 12975-2 or gross area for ISO 9806:2017.						First-order coefficient (a_1)			4.49		W/(m ² K)		
						Second-order coefficient (a_2)			0.082		W/(m ² K ²)		
						Incidence angle modifier IAM (50°)			0.95		--		
						Remark: The data given in this section are related to collector reference area (A_{sol}) which is aperture area for values according to EN 12975-2 or gross area for ISO 9806. Consistent data sets for either aperture or gross area can be used in calculations like in the regulation 811 and 812 and simulation programs.							
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